IN THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in this application.

1. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide for a mass spectrometer[[,]] ~~wherein said apparatus comprises~~ comprising:

at least one pair of conducting rods aligned in parallel, each pair being equally spaced from one another;

at least one capping electrode comprising at least one opening and bounding said conducting rods;

means for applying RF/DC potentials ~~voltages~~ to said conducting rods; and

means for applying a DC potential ~~voltages~~ to said capping electrodes[.] [[;]]

~~wherein said conducting rods are aligned in parallel,~~

~~wherein said at least one capping electrode bounds said conducting rods, and~~

~~wherein said at least one capping electrode comprises at least one opening~~.

2. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 1, wherein said at least one capping electrode comprises a plurality of openings.

3. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 2, wherein at least one of said openings accepts sample ions.

4. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 2, wherein at least one of said openings provides access through said ion guide for a laser beam to ionize a sample material.

5. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 1, wherein said ion guide focuses sample ions.

6. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 1, wherein said apparatus traps sample ions therein for ion selection.

7. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 1, wherein said apparatus traps sample ions therein for ion fragmentation.

8. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 1, wherein each said conducting rod is positioned equidistant from a vertical axis.

9. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 1, wherein said apparatus transfers sample ions from an ionization region to a mass analysis region.

10. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 9, wherein said mass analysis region comprises a mass analyzer.

11. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 10, wherein said mass analyzer selected from the group consisting of a time-of-flight mass analyzer, a quadrupole mass analyzer a quadrupole ion trap mass analyzer, a Fourier transform ion cyclotron resonance mass analyzer and an ion mobility mass analyzer.

12. – 14 **(Cancelled)**

15. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 9, wherein said ionization region comprises an ion production means.

16. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 15, wherein said ion production means is selected from the group consisting of atmospheric pressure chemical ionization, electrospray ionization, matrix-assisted laser desorption/ionization, secondary ionization and fast atom bombardment.

17. -20. **(Cancelled)**

21. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide for analyzing chemical species, wherein said ~~apparatus~~ multipole ion guide comprises:

~~at least one ion production region; an ion guide, said ion guide having~~

a plurality of conducting ~~electrodes~~ rods and at least one capping electrode comprising at least one opening and bounding said conducting rods; and

means for applying voltages to said ion guide;

~~a plurality of vacuum stages; and an analysis region;~~

wherein said ion guide accepts sample ions from ~~any said~~ at least one ion production region, and wherein said ion guide transfers said sample ions to ~~said~~ an analysis region through a plurality of vacuum stages.

22. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 21, wherein at least one of said capping electrodes comprises at least one opening.

23. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 22, wherein at least one of said openings accepts said sample ions from at least one said ionization region.

24. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 22, wherein at least one of said openings provides access through said ion guide for a laser beam to ionize a sample material.

25. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 21, wherein said ion guide focuses sample ions.

26. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 21, wherein said ion guide traps sample ions therein for ion selection.

27. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 21, wherein said ion guide traps sample ions therein for ion fragmentation.

28. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 21, wherein each said conducting rod is positioned equidistant from a vertical axis.

29. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 21, wherein said analysis region comprises a mass analyzer.

30. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 29, wherein said mass analyzer is selected from the group consisting of an ion mobility analyzer, a time-of-flight mass analyzer, a quadrupole mass analyzer, a quadrupole ion trap mass analyzer, and a Fourier transform ion cyclotron resonance mass analyzer.

31. – 33. **(Cancelled)**

34. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 21, wherein said ion production region comprises an ion production means.

35. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 34, wherein said ion production means is selected from the group consisting of electrospray ionization, atmospheric pressure chemical ionization, matrix assisted laser desorption/ionization, glow discharge, secondary ionization and fast atom bombardment.

36 .- 40.**(Cancelled)**

41. **(Currently Amended)** A method for analyzing chemical species in a mass spectrometer comprising an ion production means, at least one multipole ion guide, a vacuum system, and a mass analyzer, said method comprising the steps of:

(a) producing ions in an ion production region;

(b) introducing said ions into an ion guide, said ion guide comprising a plurality of conducting rods and at least one capping electrode comprising at least one opening and bounding said conducting rods;

(c) applying a first potential to said conducting rods such that said ions move to a central axis of said ion guide;

(d) transferring said ions from said ion guide into a mass analysis region; and

(e) conducting mass analysis of said ions.

42. **(Original)** A method according to claim 41, wherein said ions are produced from a plurality of said ion production means.

43. **(Original)** A method according to claim 41, wherein gas phase chemical reactions occur within the ion guide.

44. **(Original)** A method according to claim 41, wherein ion selection occurs within said ion guide.

45. **(Original)** A method according to claim 41, wherein ion fragmentation occurs within said ion guide.

46. **(Original)** A method according to claim 41, wherein said ions are transferred from said ion guide into a second ion guide before entering said mass analysis region.

47. **(Currently Amended)** A method according to claim 41, wherein said method further comprises the step of: [[(d)]] (c') applying a second potential to said capping electrode to create an electric field to trap said ions within said ion guide.

48. **(Original)** A method according to claim 41, wherein said capping electrode is an electrode rod.

49. **(Original)** A method according to claim 41, wherein said capping electrode is an electrode plate.

50. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 21, wherein said capping electrode is an electrode rod.

51. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 21, wherein said capping electrode is an electrode plate.

52. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 1, wherein said capping electrode is an electrode rod.

53. **(Currently Amended)** ~~An apparatus~~ A multipole ion guide according to claim 1, wherein said capping electrode is an electrode plate.